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THE EUROPEAN PINE SHOOT MOTH PROGRAM IN THE NORTHWEST 1959 - 1963

by

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A Status Review [1/]

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The discovery of the European pine shoot moth (Rhyacionia buoliana (Schiff.)) in the spring of 1959 on ornamental pines in Bellevue, Washington, a suburb of Seattle, caused great concern to foresters in the Northwest. The shoot moth is a serious pest of pines in many forests in eastern United States and Canada. In many parts of Europe, it also is considered to be a serious pest. Consequently, foresters fear the establishment of the moth in the native pine forests, particularly ponderosa pine, in the West.

Tests with Oregon ponderosa pine planted in Michigan showed it to be about as susceptible as red pine. In much of the West, only ponderosa pine can be grown commercially. There is no practical option of growing some other species.

On extensive areas in the East, the shoot moth deforms and retards tree growth making chemical control necessary. Chemical control is expensive and must be repeated for a considerable time, either that or accept the damage. Pruning to correct forking caused by the shoot moth is also expensive.

The shoot moth is especially damaging to slow-growing trees on low sites. Much of the ponderosa pine in the West is slow growing, hence likely to suffer heavy attack. Being slow growing and requiring more than a century to mature a crop, ponderosa pine can ill afford extra costs of chemical protection. Neither can it afford any material lengthening of time to mature that might be caused by repeated attacks of the shoot moth.

In the Eastern States, in eastern Canada, and in Europe, the shoot moth thrives under widely diverse climatic conditions. On areas where very low temperatures occur, it suffers heavy winter mortality, but even there it may persist under snow cover. At Spokane, Washington, in the ponderosa pine region, the shoot moth overwintered three or four years and multiplied. Minimum temperatures in much of the ponderosa pine region are favorable for the shoot moth.

1/ The author has freely used material and data from State of Washington, State of Oregon, and U. S. Forest Service reports, and from papers prepared by R. L. Furniss and others.

Parasites, both imported and native, have been relatively ineffective in controlling the shoot moth in the East. There is no evidence that they would be more effective in the West.

From these facts and considerations, western foresters have concluded that the hazard created by the shoot moth is high and that prompt and strenuous action should be taken to keep it out of commerical pine forests.

The moth has been reported at various times in western British Columbia since 1925. It has not been considered by the Canadians as a serious threat in the Vancouver or Victoria, B. C. areas.

Since the discovery of the shoot moth in 1959 at Bellevue, Washington it has been found extensively on ornamental pines in the Seattle-Tacoma area, and at several other localities around Puget Sound. It has also been found at Spokane, Washington and at Portland and Salem, Oregon. It spread from ornamentals into the native lodgepole pine stands at Shelton, Washington on the west side of Puget Sound in 1962. In 1963 the Canadians reported the finding of the shoot moth on native ponderosa pine in the Okanagan Valley at Summerland, B. C., approximately 60 miles north of the Canada-United States Border. Eradication projects in Spokane, Washington and Salem, Oregon have probably eliminated the moth from these areas. Surveys during 1962 and 1963 were unable to locate any infestations in these cities. If survey results in 1964 are negative, then eradication will be considered successful. An eradication project is currently underway in Portland, Oregon with excellent prospects of success. Intensive surveys throughout Oregon and Washington in 1960, 1961, 1962, and 1963 did not find infestations except in the areas described above. Surveys in several other Western States also have been negative.

Cooperation has been the key to action. The U. S. Forest Service, the U. S. Agricultural Research Service, the Extension Services, the State of Oregon Departments of Forestry and Agriculture, the State of Washington Departments of Natural Resources and Agriculture, Washington State University, the timber industry, and private citizens have cooperated as appropriate.

The highlights of each year's survey and eradication projects and other developments pertinent to the problem are given below.

1959

Discovery of the shoot moth in Seattle was by accident. An alert gardener found it on his ornamental pines and reported it to the Foreign Plant Quarantine Division of the U. S. Department of Agriculture. It was identified by the insect identification unit of the

Department in Washington, D. C. Several months after the discovery, foresters learned of it. A growing season passed and the shoot moth had spread.

1960

During this year major efforts to evaluate and meet the threat of the European pine shoot moth to the western pine forests were started.

Oregon-Washington Cooperative Surveys.

Through the sponsorship of the Northwest Forest Pest Action Council, a comprehensive survey of nurseries and ornamental plantings in Washington and Oregon was made by many individuals and organizations. Garden club members, notably in the Seattle area, played an important part in the survey. It revealed that the shoot moth was well established in and around Seattle, where it seemed to have been introduced at two locations several years previously from Canada, that the moth was present in Spokane, Washington where ponderosa pine grows naturally, at one location in Portland, Oregon, and one in Shelton, Washington. Fifty-seven communities in Washington and 33 in Oregon were surveyed. Exact costs are not available, but probably exceeded $20,000 of contributed time by the many participating agencies.

Fumigation Studies.

In 1960-61 the U. S. Forest Service in cooperation with the State of Washington and the U. S. Agricultural Research Service, conducted tests to determine the efficacy of methyl bromide as a fumigant in killing shoot moth on ornamental pines.2/ A series of tests covering the four seasons were

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2/ Thompson, R. M., W. H. Klein, and Benton Howard
Preliminary guidelines for the eradication of the European pine shoot moth by fumigation with methyl bromide. U. S. Forest Serv., Pac. N.W. Region, February 1962. 4 pp.

Carolin, V. M., W. H. Klein, and R. M. Thompson
Eradicating European pine shoot moth on ornamental pines with methyl bromide. U. S. Forest Serv., Pac. N.W. Expt. Sta. Res. Paper 47, March 1962. 16 pp.

Klein, W. H. and R. M. Thompson
Procedures and equipment for fumigating European pine shoot moth on ornamental pines. U. S. Forest Serv., Pac. N.W. Expt. Sta. Res. Paper 50, July 1962. 25 pp., illus.

Carolin, V. M. and W. K. Coulter
Eradicating European pine shoot moth in commercial nurseries with methyl bromide. U. S. Forest Serv., Pac. N.W. Expt. Sta. Res. Paper 1, May 1963. 11 pp.

done. It was demonstrated that methyl bromide fumigation is a practical means to eradicate moth from pines. Procedures are now available for the fumigation of ornamental pines in situ, of pines in nursery beds, of pines in containers and bundled nursery stock.

Many of these experiments were conducted on infested pines growing at the residences of citizens in the Seattle area. Their cooperation in making their trees available is an outstanding example of public-spirited assistance. The direct costs of the fumigation tests were about $46,000.

Policies.

The Northwest Forest Pest Action Council, at its annual meeting on October 24, 1960, recommended the following:

1. Eradicate the insect before emergence of the adult in the spring of 1961.

2. Stress publicity throughout Oregon and Washington in cooperation with the Extension Services to encourage individual checking and control on private property.

3. Initiate an intensive combination survey-eradication program in Spokane and Portland using available Federal and State funds.

4. Intensify efforts to obtain uniform State quarantines for Oregon, Washington, Idaho, and Montana and other Western States, and a Federal quarantine to prevent shipment of infested stock from Canada into non-infested areas.

1961

Major accomplishments marked 1961 with substantial progress on all objectives. Early in the spring all the pines at the infested nursery in Portland, where the moth was discovered in 1960, were destroyed.

On April 17, 1961, shoot moths were found on pines in a nursery in Salem. Some 7,500 pines were shipped from this nursery to nurseries in Salt Lake City, Utah. The State of Utah allowed these shipments to enter despite being informed that the shipping nursery was infested. The pines were inspected at Salem prior to shipment and all trees found infested were removed and destroyed. Further inspections were made after arrival in Salt Lake City where 25 additional infested trees were found and destroyed. This points up

the fallacy of depending upon inspections in an eradication attempt. The several thousand pines that were not shipped to Utah were destroyed.

Portland-Salem, Oregon Eradication Project.

During 1961 the State of Oregon and the U. S. Forest Service cooperated in a project to eradicate the moth from the Portland-Salem area. Before the Oregon Department of Forestry could work in Portland, it was necessary for the Oregon Legislature to pass enabling legislation.

During the survey, 12,928 properties in Portland and 1,797 in Salem, on which a total of 49,648 pines were examined. Only 19 infested pines were found at two nurseries and eight residences in addition to the initial find at a Portland nursery. No infestations, other than in the nursery, were found in Salem. The infestations at four of the Portland residences were traced to one of the infested nurseries; the source of the infestation at the others was not determined. All the pines at the two infested nurseries were destroyed as were the infested pines at the residences. The costs of this project were shared 50-50 by the State and the Forest Service, and were approximately $19,000. The estimated value of the pines destroyed in the nurseries at Portland and Salem is about $20,000.

Spokane, Washington Eradication Project.

During 1961, the State of Washington surveyed the City of Spokane and much of the Spokane Valley in an effort to locate and eradicate the European pine shoot moth. This cooperative project was administered by the State, finances were 50 percent State funds and 50 percent Federal funds. Technical direction was by U. S. Forest Service entomologists. Some 73,700 properties were surveyed and 24,683 ornamental pines were located and examined. Approximately 45,000 pine buds from trees in a native ponderosa pine stand were examined. The crews found 429 infested ornamental pines, all of which were destroyed as well as an additional 294 pines which were growing within 200 feet of an infested tree. The costs were nearly $34,000.

Oregon and Washington Surveys.

During 1961, the Statewide surveys were under the direction of the U. S. Forest Service. Organized and trained crews were used. In addition to these crews, inspectors from the State Departments of Agriculture in Oregon and Washington, and the

U. S. Agricultural Research Service inspected nurseries and sales outlets. Previously unknown infestations were found at Bellingham, near Raymond, Chehalis, and at Suquamish, Washington. The infested trees near Raymond, Chehalis, and at Suquamish were destroyed. The surveys revealed that infestations were generally spread throughout the Seattle-Tacoma metropolitan area and had greatly intensified during the year. A total of 273 communities, 194 in Washington and 79 in Oregon were surveyed. The cost of the U. S. Forest Service crews approximated $35,000. Costs incurred by the State's Department of Agriculture and the U. S. Agricultural Research Service are not known.

Quarantines.

The States of Oregon, Washington, Idaho, Montana, and Utah established inter-state quarantines in 1961, Washington established an intra-state quarantine forbidding the movement of untreated pines from Pierce, King, Mason, Spokane, and Whatcom Counties unless fumigated according to prescribed standards. In addition to Oregon, six other Western States either established or revised their European pine shoot moth quarantines as listed below:

State	Effective date
Oregon	3/13/62 (revised)
Washington	9/11/62 (revised)
Utah	11/1/63 (revised)
Montana	9/24/62 (revised)
Idaho	1/1/62 (revised)
California	7/18/62
Nevada	8/1/62

The Western Plant Board, which is composed of regulatory officials of the Department of Agriculture in the Western States and British Columbia, has been most helpful in this problem. Quarantines are under the jurisdiction of Agriculture officials in most States.

The movement of pines into the United States from foreign countries is restricted by Federal regulations.

Cooperative efforts were continued throughout the year.

Western Washington Surveys.

The State of Washington and the U. S. Forest Service conducted a survey in western Washington; Bellingham, Shelton, Chehalis, Olympia, Everett, and smaller towns were covered. It was discovered that the shoot moth had escaped to native lodgepole pine at Shelton. Because of the escape of the moth into the native lodgepole pine stands and due to local opposition to eradication measures at Bellingham, the Northwest Forest Pest Action Council recommended that the Puget Sound area from Tacoma northwest to the Canadian line be set up as a containment zone pending future developments. No infestations were found at Suquamish, Chehalis, nor Raymond where the pines had been destroyed at infestations found in 1961.

The U. S. Forest Service crews surveyed sample lodgepole stands around the Puget Sound from Shelton to Blaine during the season. No infestations were found.

Costs are estimated at $14,000 for the season.

Seattle-Tacoma Nursery Surveys.

The State of Washington Department of Agriculture, assisted by Department of Natural Resources and U. S. Forest Service crews, made an intensive survey of nurseries and sales outlets in the Seattle-Tacoma area. Some 204 were checked and about 125,000 pines examined. Infestations were found at 34 sales outlets and a total of 547 infested trees were located. Of these pine, 175 were destroyed and 317 were 100 percent clipped and the clippings burned.

The State instituted a pine tagging program. Infested trees were tagged and held for action by the Department of Agriculture. All apparently uninfested trees were tagged with two-part numbered tags. These tags called attention to the intra-state quarantine, which forbids the movement out of the quarantined counties. One part of the tag is designed to be turned into the Department of Agriculture. Follow-up inspections were made.

Costs were about $4,200.

Spokane, Washington Eradication Project.

In 1962, the State of Washington again administered a cooperative project in Spokane. Some 29,823 residential and business properties were inspected and 15,052 trees examined. In addition, 126 nurseries and sales outlets were covered and 9,287 pines inspected. No infested trees were found.

Costs were approximately $27,000.

Portland-Salem, Oregon Eradication Project.

The cooperative survey and eradication project was continued in 1962. The entire Portland metropolitan area from Gresham to Beaverton and from the Columbia River to Oregon City was surveyed. Salem was covered intensively. The areas in Portland and Salem covered in 1961 were resurveyed in 1962. The crews also covered Forest Grove, Hillsboro, McMinnville, Newberg, and St. Helens. A total of 202,042 properties were surveyed and 185,707 pines were examined. The only infestations found were on three previously unsurveyed properties in a small area of a few blocks in southeast Portland. These infested trees, which had been planted prior to the 1961 survey, were purchased at one of the nurseries found infested in 1961.

The costs were approximately $39,000.

Oregon and Washington Surveys.

The survey arrangements were much the same as in 1961 with the State Department of Agriculture and the U. S. Agricultural Research Service surveying nurseries and sales outlets and the U. S. Forest Service crews surveying communities as well as some nurseries and sales outlets. Surveys were completed by the end of September. Approximately 176 communities in Washington and 100 communities in Oregon were covered. In addition, native lodgepole stands around the Puget Sound were sampled. One new infestation of trees on one property outside the Puget Sound area was found at Aberdeen, Washington. The infested trees were purchased in the Seattle area by a landscaper and moved to Aberdeen in violation of the State of Washington quarantine.

Costs of the U. S. Forest Service crews were about $14,000 for the season.

Oregon Legislation.

A bill to reimburse, up to the limit of $21,500, the owners of pines destroyed in Portland and Salem was introduced into the Oregon Legislature. It died in Committee.

Research.

The U. S. Forest Service started a study of the dispersal characteristics of the moth in western Washington.

1963

The year was highlighted by the discovery by the Canadians of European pine shoot moth on native ponderosa pine in the Okanagan Valley. In Oregon and Washington, efforts were continued along the same pattern as in previous years.

British Columbia Surveys.

The surveys were under the direction of the Forest Entomology and Pathology Laboratory, Canada Department of Forestry, Victoria, B. C. At a meeting in Victoria attended by representatives of the U. S. Forest Service, the Washington State Department of Natural Resources, the Victoria Laboratory, Canada Department of Forestry, the B. C. Forest Service, the B. C. Provincial Entomologist, and the Plant Protection Division, the Canadians reported as follows:

> "Over 100 collections of infested pine shoots collected in the coastal region were reared. European pine shoot moth were identified from 16 collections, eight from the greater Victoria area and eight from greater Vancouver. Over half of the samples were from ornamental trees planted out on landscaped lots. The survey indicates that the shoot moth is well established in the two major coastal regions, but the attacks on individual trees were not heavy.
>
> "Of considerable interest was the presence of other species of shoot moths. Seventeen collections from the Victoria area contained Epinotia sp., and 32 collections from the Vancouver area contained Dioryctria spp. Both genera were recovered from Mugho pine although the preferred host was lodgepole pine.

"In the Interior, European pine shoot moth adults were reared from collections made at Kelowna, Westbank, Summerland, and Penticton. All but three of these collections were from nurseries. The most significant record was the recovery of European pine shoot moth from ponderosa pine. One female moth, reared from ponderosa pine collected at the Summerland Experimental Station, mated with males from mugho pine and laid eggs on a caged ponderosa pine. At least three larvae hatched and mined into the shoots. Although only a single record it does show that the shoot moth is capable of overwintering successfully in the Okanagan Valley, and it will accept ponderosa pine as a host in its native habitat."

Spokane, Washington Eradication Project.

For the second consecutive year cooperative surveys in Spokane and vicinity were negative. Some 23,124 trees were examined on 32,632 properties. The costs were approximately $8,900.

Portland, Oregon Eradication Project.

Of the 98,411 trees examined during the survey, six trees on five residential properties were found to be infested with European pine shoot moth, and all were destroyed with the owner's permission. In addition, the Nursery Inspection Service of the State Department of Agriculture, with the cooperation of personnel from the U. S. Agricultural Research Service, inspected 427 nurseries and 321 retail outlets during the survey, and found two infested trees in a nursery in southeast Portland which were likewise destroyed. All of the eight infested trees were found in the relatively small area in southeast Portland where infested trees were found in 1962.

Oregon and Washington Surveys.

Infestations within the containment zone (Puget Sound area) intensified greatly. Previously unknown infestations were located in 25 additional communities, many of which are suburbs of Seattle. A survey on Mercer Island in Seattle indicates that pines on the entire Island are now infested.

In 1963, 42 communities in Washington outside the containment zone were surveyd with negative results, as were 28 communities in Oregon.

Costs Summary.

From 1960 through 1963 the costs of the several European pine shoot moth projects have been substantial. The approximate known direct costs are shown in the following table. Expenditures by the Department of Agriculture in Oregon and Washington and by the U. S. Agricultural Research Service and by other cooperators have been substantial but are unknown. The Canadian costs are not known.

Approximate Costs 1960-63

Project	Year	Dept. of Natural Resources Washington	Dept. of Forestry Oregon	U. S. Forest Service	Total
	1960				
Cooperative surveys		--	--	--	$ 20,000
	TOTAL				$ 20,000
	1961				
Spokane eradication		$16,840	--	$ 16,840	$ 33,680
Portland eradication		--	$ 7,768	7,768	15,536
Oregon and Washington surveys		--	--	35,000	35,000
	TOTAL	$16,840	$ 7,768	$ 59,608	$ 84,216
	1962				
Spokane eradication		$13,666	--	$ 13,666	$ 27,332
Portland eradication		--	$19,596	19,596	39,192
Oregon and Washington surveys		--	--	14,581	14,581
Fumigation studies (1961-62)		x	--	46,112	46,112
	TOTAL	$13,666	$19,596	$ 93,955	$127,217
x = unknown					
	1963				
Spokane eradication		$ 4,450	--	$ 4,450	$ 8,900
Puget Sound nursery surveys		4,220	--	--	4,220
Portland eradication		--	$ 9,049	9,049	18,098
Oregon and Washington surveys		--	--	11,794	11,794
	TOTAL	$ 8,670	$ 9,049	$ 25,293	$ 43,012
TOTAL 1961-63		$39,176	$36,413	$178,856	$254,445
TOTAL 1960-63 (Includes est. $20,000 cooperative surveys in 1960)					$274,445

Total Spokane	$ 69,912
Total Portland	72,826
Total surveys	85,595
Total fumigation	46,112
TOTAL	$274,445

Resume of the European Pine Shoot Moth Situation as of October 1963

The infestation picture is as follows:

Puget Sound Containment Area.

1. The moth has escaped into native lodgepole pine stands at Shelton, Washington.

2. Spread and intensification has occurred throughout Seattle and suburbs, and in Tacoma.

3. Previously unknown infestations were located in 1963 in the Puget Sound area at Gig Harbor, Rosedale, Forest Beach, Wollochet, Cromwell, Burlington, Blaine, Lynden, Waterman, Vashon Heights, Cedarhurst, and Raeco.

4. Local opposition to tree removal has stalled eradication efforts at Bellingham and at Shelton. The protestants raise this question--why bother us until something is done about Seattle?

5. The moth has adapted itself well to the environment. Populations are high in individual trees and natural spread to pines in the neighborhood has been common. All species of pines surveyed have been found infested. There is no evidence as yet of significant natural control.

Spokane, Washington Eradication Project.

1. In 1961 all infested pines found and all pines within 200 feet of infested trees were destroyed prior to moth flight.

2. Surveys in 1962 and 1963 were negative.

3. Based on observations in 1960 and 1961, the shoot moth found the Spokane habitat quite compatable.

4. It is probable that no infestations are present in Spokane.

5. A negative survey in 1964 would indicate that the eradication of the moth has been achieved.

State of Washington Surveys.

The European pine shoot moth probably is not present in the State outside of the Puget Sound area. Surveys in 1960-63 have been negative.

Portland-Salem, Oregon Eradication Project.

1. Known infestations were eradicated before moth flight from Salem in 1961. Surveys in 1962 and 1963 were negative.

2. It is probable that the moth has been eradicated from Salem. If a survey in 1964 is negative, eradication would be confirmed.

3. All known infestations were eradicated prior to moth flight from metropolitan Portland in 1961.

4. In 1962, 18 infested pines were found at three locations in a localized area of a few blocks. All infested trees were destroyed prior to moth flight. Surveys were negative in the rest of the Portland area.

5. In 1963, 8 infested pines were found at 6 locations in the same neighborhood where the trees were found in 1962. One pine in a back yard apparently missed in 1962 was probably the source of the infestations. All trees were destroyed prior to moth flight. The area was resurveyed with negative results.

6. It is probable that Portland is free from infestation.

7. Negative surveys in 1964 would indicate that eradication was successful in all of the metropolitan area except possibly the one area where infestations were found in 1962 and 1963. Negative surveys in 1964, 1965, and 1966 will be required to be positive that no infestations are present in this limited area.

State of Oregon Surveys.

1. For four successive years, 1960 - 1963, no infestations have been found other than the ones in Portland and Salem.

2. It is probable that no infestations are present in the State.

Quarantines.

1. There is a federal embargo against pine being shipped into the United States from foreign countries.

2. The following listed western states have established uniform European pine shoot moth quarantines: Oregon, Washington, Idaho, Montana, California, Nevada, and Utah.

3. Under the provisions of the uniform quarantines, pines that have been fumigated according to the prescribed standards are permitted to move in the normal trade channels.

Research.

1. A great deal of research is being done in the eastern United States and in eastern Canada.

2. The Pacific Northwest Forest and Range Experiment Station of the U. S. Forest Service is conducting a study on the dispersal of the moth.

3. Eradication techniques by fumigation with methyl bromide have been developed.

Considerations for 1964 and the Future

The battle to contain and eradicate the European pine shoot moth now has progressed to the point where long-range policies and programs can be assessed. Survey, eradication and research data now permit a reasonably valid look at what might be possible.

The moth is firmly established in the Puget Sound area and has been in southwest British Columbia for many years. It is presently on native lodgepole pine at Shelton, Washington and on native ponderosa pine at Summerland, B. C.

Quarantines have been established.

The only known means of eradication is either tree destruction or fumigation, neither of which seem a feasible or acceptable method in the widespread infestations in the Seattle-Tacoma area.

The current eradication projects in Spokane, Washington, in Portland and Salem, Oregon appear to be successful.

Without eradication in the Puget Sound area and in the Okanagan Valley in British Columbia, the eventual spread into the ponderosa pine forests of the West is inevitable. Observations in Spokane and in Seattle indicate that the moth will flourish in many parts of western America and is capable of doing enormous damage to young pine.

Several courses of action are possible and decisions concerning both short- and long-range policies and programs should be reached. The areas needing consideration are as follows:

1. In the Puget Sound area a decision must be made between eradication or containment. If containment is to be the policy, then follow-up work on the quarantines, with the nursery industry and with the public, should be programmed. Research should be geared to control measures that can be effective under forest conditions. If eradication is to be the long-range goal, then research must develop means that will be acceptable to the public. This obviously would be a major undertaking.

2. To be able to assess the impact on the ponderosa and lodgepole pine forests, an effort should be made to evaluate the possible damage to the pine stands of western America. An estimate should be made by forest entomologists familiar with shoot moth damage in other areas and with experience in the West. Perhaps research is needed here.

3. Based on the estimate of possible damage to the stands, the forest economists should attempt to relate the estimated damage to losses to the economy and to the impact on forest management.

4. Regardless of the long-range policies and programs, completion of the eradication effort in Spokane and Portland and Salem is desirable.

5. Surveys in Oregon and Washington will be needed for many years. Knowledge of the extent of spread and degree of intensification is necessary to enable forest managers to make adequate year to year decisions.

6. The decisions made by the Canadians as to the infestation at Summerland, B. C. will have an important bearing on long-range policies in the United States. This infestation, in native ponderosa pine stands, unless it is eradicated gives the moth an unimpeded path to the pine stands of western America.

The Northwest Forest Pest Action Council, at its annual meeting in Portland on October 17, 1963, directed its European Pine Shoot Moth Committee to study the situation including the economic impact on the West, and to make recommendations as to the long-range needs and policies concerning eradication, control and research.

Foresters in both Canada and the United States, particularly those in top policy making posts, in 1964 must make decisions concerning the European pine shoot moth that will have an enormous bearing on the future of pine management.